Sr.No.	Unit	Sub unit	Topic	Sub topic	Concept/terms/processes/approaches/system/subsystems/definition/procedure/structure etc	Learning activities	Objectives/Knowledge/application/skills/competencies/capacities/capabilities/values to be developed	OERs	Concept Map of the OER	Facilitators role
1	1	1.1	Study of Soil and Climate	Study of Different Soil Parameters / its role in crop production.	What is Soil ? Different types. Fuctions of soil in crop production. Important Physical / Chemical Properties in relation with crop production.	Identification of different soils (colors) in field. Testing its physical / chemical (selected) properties in field/Lab.Planting same seeds in pots/cups with differnet growing media and recording plant growth.Talking to nearby Farmer for his experience in soil properties.	Observation and Study soil and its forming source . Understanding important soil properties in crop production and learning skill of testing them in field/lab.	Charts / posters/ Photos of different soil and their properties. Provision Farmers/ farmers group intraction.		Take students to croping field and show them different soils (by colore / texture) and its fuction in crop production. Encourge students to do small projects in school/home with different soil as black soil , sand.
2		1.2		Study of Climate / Its importance in Crop Production.	Different parameters of climate in crop production. Different method / instruments/Units of recording weather parameters. Use available weather recording instrument in local area.	Understanding and recording different climatic parameters of their area and its relation with crop production.	Study climate and its relation with crop . Understanding and using selected weather recording instruments and their units of recording.	Weather record and croping pattern of selected area. Farmers understanding of climate and crop relation.		Showing students different weather recording instrument in school or nearby wheather station. Showing weather charts / posters.
3	2	2.1	Study of field crops	Cultivation of crops. Different cultivation practices in India.	Terms- Cultivation, Tillage ,What is seed rate, Sowing , Water management ,Fertilizer dose , Yeild. Concept- Botanical name , cereal crops, Pulse crops, oil seed crops.	Fiels observations and recording of crops. Cultivation of selected crop.	Study cultivation practices and time line implemainted by local farmers for selected crop. Cultivation of any one field crop (group of students).			Selected any field crop of local area and encourage student to cultivate it in selected area.Facilitation of field , field preparation tools , seed material , fertilzer etc. Encourage students to compaire book practices with farmers experience for selected crop.
4	3	3.1	Study of Horticultural crops	What is Horticulture? Its scope and Importance. Methods (layout) of plantation.	Horticulture ,Floriculture, Perennial crops,seasonal crops, Different layout / plantation methods, Cultivation of important fruit crops like Mango, Banana, Grape etc.	Identifying Horticultural crop of selected area and its layout methos, Practicing different layout methods in school, Calculation of Plant density from layout.	Study different Horticultural crops and its cultivation practices. Study of Layout of plantation and calculation of plant density.	Posters / cultivation chart / layout chart / PPT / video of plantation.		Taking students to nearest fruit crop plantation , demostrating different layouts and plant population layout.
5	4	4.1	Plant Nutrients , Manuares, Fertilizers.	Basic plant physiology. Plant growth and different factors afecting growth.Important plant nutrients.	Concept - Plant nutirent and their source, Organic farming.Terms - Plant Nutrients. Manuares , Fartilizers.	Identification of different plant nutrient forms as Biofertilizers , manuars , type of fertilizers. Studing plant nutrients and their role in plant growth/Deficiency symptoms. Preparing organic manuars. Small .	Study different plant nutrients , their role and available sourse for farmers. Preparing different organic manures in field. Studing different deficiency symtopms of plant nutrients. Organic Farming for better health.(Value)	Plant nutrient chart / posters. Visit to local agro clinic. Live samples of manuares / fertilizers.		Demostrating different plant fertilizers / manuars. Taking students to local agro clinic , encouraging students to do small project on different plant nutrient application.
6	5	5.1	Study of different diseases of crop plants.	Plant Disease and its cause	Disease? , causing organisums? , symptoms? , Spead ? .	Collection of disease leaf samples from field , Identification of fungal disease, Bacterial diseases.	To learn different disease of field crops , to learn fungal / bacterial disease,Understanding and identification of different dieseas in field crops and their causal organisum ,spread.	Farmers field affected with disease,Photos of diseased crops, PPT , vedio, Agroclinic.		Take students to nearest field and identify diseased samples, show examples of fungal/Bacterial disease, Show fungicide packagings and lable claims, take students to nearest agroclinic.
7		5.2		Disease management	Disease management , Fungicide , Bactericide , Spaying of chemicals ,IDM (Integrated disease management),Lable claim?	Preparing required formulation of Fungicide for spraying in field, Preparation of any organic fungicide / bactericide for spraying in field, Visiting nearest Agro-clinic to purchase fungicide, Read lable claim on fungicide package, Implementing IDM in selected field.	To Learn management of disease in field, To Learn preparation of fungicide formulation for spraying, To learn importance of IDM in farming , To learn safty precautions required in chemical spraying, To learn who to read lable claim of fungicide.	Photos, Charts,Video,PPT,Agroclinics, Fucngicide companies blouchers,Farmers groups.		Take students to nearest Agroclinic, Show fungicide spraying instructions, lable claims, arrenge spraying activity in fields, demonstrate different IDM practices.
			Study of different			Identification of pest in field, Collection of different pest / insects from field and their symptoms,Measure				Collect pest samples from field , Apply ETL, show photos of pest

8	6	6.1	Pest of crop plants.	Pest Identification	What is pest? Different types? Difference between Insect and Spider, ETL (Economic Threshold level).	ETL in field , visiting nearest Agroclinic.	To learn identification of pest in field , To learn measuring of ETL, To learn different types of pesticides and satefy instruction in using them.	Posters /Photos/Video film/ manuals.		and their symptoms.
9		6.2		Pest Management	Pesticide and their types,Pesticide formulation,Systemic and contact pesticides,Lable claim,IPM.	Prepare pesticide formulation fro spraying, Spraying in field, Demonstrate proper spraying method in village.	To learn use of correct pesticide as per pest, To learn preparing correct pesticide formilation, To learn importance and methods of IPM, To learn safety instruction of pesticide spraying in field.	Empty bottles of different pesticides, IPM charts for local crops,Spraying instructional charts, IPM ppt / video.		Implement IMP in near by field.
10	7	7.1	Weed & weed control		Weeds? Weed control,Preventive control , mechanical/chemical/biological weed control, Mulching , weedicide.	Identifing different type weeds and its mode of spread, Use of mulching field, spraying of weedicide.	Identification of different weed in field and its control measures. Importance of mulching as preventive method of weed control, Use of weedicide in field. Disadvantage of weedicide use.	Weeds photo album, collection of samples,Visit to agroclinic to identify weedicide.		Providing field for use of mulching and weedicide spray , arranging visit to nearest agroclinic.
11	8	8.1	Plant Propagation and Nursery		Plant Propogation? Sexual ad Asexual Plant propogation,Layering,Air Layering, Grafting,Buding	Calculating germination %, Preparation sowing (Raised beds) , perform Soft/Hardwood cutting in field, Perform Air layering/ grafting/buding in field.	To learn important plant propogation methods, To learn seed germination and % of germination, To learn methods of asexual propogation as cutting / layering / grafting / Buding with their different types..	Photos, video, grafting digrame charts, buding charts.		
12		8.2		Nursery , Nursery Management.	What is nursery? Techniques of Nursery managtmen, Shed net , coco-pit and its advantages , seedling trays.	Visit nearest vegetable / fruit crop nursery and record number of plants / method of propogation followed, Sown same seed in nursery under shade net , Use coco=pit / seedling trays etc for seed sowing.	To learn nursery tech , To perform nursery tech such as seed bed preparation, bed sterilization, seed sowing.	Video , visit to nursey , PPT.		
13	9	9.1	Green House and Polyhouse		Polyhouse ? Its types. UV stabilizing film , CO2 sensitive crops.	Visiting near by polyhouse and meeting polyhouse farmer & compairing advantages with open farm cultivation, Constructing small polyhouse / tunnel with UV film cover.	Controled climate farming and its advantages. Different types of polyhouses and its componants , Polyhouse cultivation skills for selected crop.	Polyhouse video , book , polyhouse visit.		
15	10	10.1	Advanced Techniques in Agriculture	Seed treatment	Seed Treatment ? Types .	Doing seed treatment for selected crop, sown treated seed in field (in tray)and compaire its growth with normal (non treated seed).	TO learn importance of seed treatment and their different types, To adopt skill of seed tretment to selected crop,To learn safty instructions in seedtreatment.	PPT/Video/Study material.		
16		10.2		Tissue culture	What is TC? Advantages .	Collecting information of tissue culture in BANANA / Strawbery.	Understanding Tissue culture concept and its advantage/disadvantages.	Video / PPT		
17		10.3		Growth harmons	Growth harmons ? Types .	Apply selected growth harmon and record results on selected crop.	Use of growth harmons in field.	Live samples of GH , use charts , videos .		
18		10.4		Fertigation	Fertigation ? Advantages , Water soluble fertilizers.	Carry small experiment with water soluble / non-soluble fertilizer in field/tray.	Understanding fertigation , its advantages.			
19		10.5		Organic Agriculture	Organic farming,its advantages. Pesticide residue,Soil /water/air polution, Types of organic inputs.		To leran importance of Organic farming, To learn soil/water/air polution,To learn different methods of compost preparation,To learm how to prepare Bio-dynamic compost.	Charts/Posters/Video/PPT		Prepare biodynamic compost with students , record time required for composting.
20		10.6		Vermicompost	Vermicompost? Vermiwash.	Prepare vermicompost and vermiwash.	To learn life cycle of earth worm and its importance in agriculture, To learn different method of vermicompost preparation,To learn preparation of vermicompost and vermiwash.	Charts/Posters/Video/PPT		Prepare vermicompost and vermiwash with students , record time required for composting.
21		10.7		GM crops	What are GM crops , advantages / disadvantages , BT cotton.	Collecting informtin of BT cotton. Interview atleast 5 BT cotton farmers.	Understanding of GM tech.	Video /PPT.		
22		10.8		Seed Production	Different types of seed, Pollination / cross pollination, F1 Hybrid.					